

Abstract of the Disclosure

A porous glass composite material comprising at least one alkoxodisilane (precursor) having the general formula (or¹)₃Si-spacer-Si(OR²)₃, wherein R¹ and R² are the same or different and may be hydrogen; substituted and unsubstituted, branched and unbranched C₁₋₂₀-Alkyls; substituted and unsubstituted, branched and unbranched C₁₋₂₀-alkenyls; substituted, unsubstituted, and multiple ring aryl groups; or combinations thereof; and water. Devices including the glass composite materials are also described. Examples include chromatographic and other separation media, drug delivery vehicles, and electric and mechanical actuators.